

**CLAIMS**

- 1 1. A method for detecting a correct transmission format upon encountering  
2 a decoding error in a variable-format transmission scheme, wherein the  
3 decoding error results from an unsuccessful decoding of a frame  
4 including data, comprising:  
5 prioritizing a plurality of permissible formats, resulting in a prioritized  
6 order; and  
7 decoding the data according to one or more of said permissible formats  
8 in said prioritized order, and if said decoding according to one of said  
9 permissible formats is successful, selecting the corresponding permissible  
10 format as the correct transmission format.
- 1 2. The method of claim 1, wherein said prioritizing comprises:  
2 determining a metric for each of said plurality of permissible formats; and  
3 ordering said permissible formats according to said metrics to form said  
4 prioritized order.
- 1 3. The method of claim 2, wherein the frame further includes a format  
2 indication corresponding to a first format, wherein a permissible format  
3 indication corresponds to each of said plurality of permissible formats,  
4 and wherein said metrics are a function of the format indication and the  
5 corresponding permissible format indication.
- 1 4. The method of claim 3, wherein said function comprises a Euclidean  
2 distance between a first code word associated with said format indication  
3 and a second code word corresponding permissible format indication.
- 1 5. The method of claim 3, wherein said function comprises a projection of a  
2 first code word representing said format indication onto a Hadamard  
3 space, wherein said Hadamard space includes code word vectors  
4 representing said plurality of permissible format indications.

- 1 6. The method of claim 2, wherein the frame further includes a format  
2 indication corresponding to a first format, wherein said metrics are a  
3 function of historical format data.
- 1 7. The method of claim 6, wherein said historical format data comprises the  
2 number of occurrences of said permissible formats during a first time  
3 interval.
- 1 8. The method of claim 2, wherein said determining a metric comprises:  
2 tracking a number of occurrences corresponding to each of said  
3 permissible formats over a first time interval; and  
4 calculating said metrics using said number of occurrences of the  
5 corresponding permissible format.
- 1 9. The method of claim 8, wherein said first time interval ends prior to the  
2 unsuccessful decoding of the frame.
- 1 10. The method of claim 2, wherein the frame is one of a plurality of frames  
2 transmitting a block of data, wherein each of said metrics is at least a  
3 function of the number of occurrences of the corresponding permissible  
4 format over said block of data.
- 1 11. The method of claim 10, wherein the frame includes a plurality of sub-  
2 channels, wherein a transport format combination indicator is associated  
3 with each of said plurality of frames, and wherein each of said metrics is  
4 further a function of said transport format combination indicators.
- 1 12. The method of claim 2, wherein said decoding comprises decoding the  
2 data according to each of said permissible formats in said prioritized  
3 order until the data is correctly decoded, or until said permissible formats  
4 have been exhausted.
- 1 13. The method of claim 12, wherein only those permissible formats having a  
2 metric within a first range are included in said prioritized order.

1 14. The method of claim 2, wherein said decoding comprises partially  
2 decoding the data until it can be determined whether said decoding is  
3 successful.

1 15. A method for decoding data upon encountering a transmission error in a  
2 variable-format transmission scheme, wherein the error results from an  
3 unsuccessful decoding of a frame including data, comprising:  
4 determining a metric for each of a plurality of permissible formats;  
5 prioritizing said permissible formats according to said metrics, resulting in  
6 a prioritized order; and  
7 decoding the data according to one or more of said permissible formats  
8 in said prioritized order.

1 16. The method of claim 15, wherein said decoding comprises decoding the  
2 data according to each of said permissible formats in said prioritized  
3 order until the data is correctly decoded, or until said permissible formats  
4 have been exhausted.

1 17. The method of claim 16, wherein said decoding further comprises  
2 reporting an error to an upper application layer upon exhausting said  
3 permissible formats.

1 18. A remote station apparatus comprising:  
2 means for receiving a frame, wherein said frame includes data;  
3 means for determining a metric for each of a plurality of permissible  
4 formats upon the unsuccessful decoding of said frame; and  
5 means for decoding said data according to one or more of said  
6 permissible formats in order of said metrics, and if said decoding is successful,  
7 for selecting the corresponding permissible format as the correct transmission  
8 format.

1 19. The apparatus of claim 18, wherein said frame further includes a  
2 received format indication, wherein a permissible format indication

3 corresponds to each of said plurality of permissible formats, and wherein  
4 said means for determining comprises means for calculating the  
5 Euclidean distance between the code words representing said received  
6 format indication and said permissible format indications.

1 20. The apparatus of claim 18, wherein said frame further includes a  
2 received format indication, wherein a permissible format indication  
3 corresponds to each of said plurality of permissible formats, and wherein  
4 said means for determining comprises means for projecting a first code  
5 word representing said received format indication onto a Hadamard  
6 space, wherein said Hadamard space includes code word vectors  
7 representing said plurality of permissible format indications.

1 21. The apparatus of claim 18, wherein said means for determining  
2 comprises:  
3 means for tracking a number of occurrences corresponding to each of  
4 said permissible formats over a first time interval; and  
5 means for calculating said metrics using said number of occurrences of  
6 the corresponding permissible format.

1 22. A computer readable media embodying a method for detecting a correct  
2 transmission format upon encountering a decoding error in a variable-  
3 format transmission scheme, wherein the decoding error results from an  
4 unsuccessful decoding of a frame including data, the method comprising:  
5 determining a metric for each of a plurality of permissible formats;  
6 prioritizing said permissible formats according to said metrics, resulting in  
7 a prioritized order; and  
8 decoding the data according to one or more of said permissible formats  
9 in said prioritized order, and if said decoding is successful, selecting the  
10 corresponding permissible format as the correct transmission format.

1 23. The computer readable media of claim 22, wherein the frame further  
2 includes a format indication corresponding to a first format, wherein a  
3 permissible format indication corresponds to each of said plurality of

4 permissible formats, and wherein said metrics are a function of the  
5 format indication and the corresponding permissible format indication.

1 24. The computer readable media of claim 22, wherein said function  
2 comprises a Euclidean distance between a first code word associated  
3 with said format indication and a second code word corresponding  
4 permissible format indication.

1 25. The computer readable media of claim 24, wherein said function  
2 comprises a projection of a first code word representing said format  
3 indication onto a Hadamard space, wherein said Hadamard space  
4 includes code word vectors representing said plurality of permissible  
5 format indications.

1 26. The computer readable media of claim 22, wherein the frame further  
2 includes a format indication corresponding to a first format, wherein said  
3 metrics are a function of historical format data.

1 27. The computer readable media of claim 22, wherein only those  
2 permissible formats having a metric within a first range are included in  
3 said prioritized order.

1 28. The computer readable media of claim 22, wherein said decoding  
2 comprises partially decoding the data until it can be determined whether  
3 said decoding is successful.

1 29. A wireless communication system comprising:  
2 a transmitter configured to encode a frame according to a first  
3 transmission format, wherein said first transmission format is selected from a  
4 plurality of permissible formats; and  
5 a receiver configured to:  
6 receive said frame, wherein said frame includes a received format  
7 indication,

8                    decode said frame according to the transmission format  
 9                    corresponding to said received format indication,  
 10                    prioritize said plurality of permissible formats upon encountering a  
 11                    decoding error with said frame, resulting in a prioritized order, and  
 12                    decode said frame according to one of more of said plurality of  
 13                    permissible formats in said prioritized order.

1    30.    The wireless communication system of claim 29, wherein said receiver is  
 2           further configured to decode said frame according to each of said  
 3           plurality of permissible formats in said prioritized order until said frame is  
 4           correctly decoded, or until said permissible formats have been exhausted

1    31.    The wireless communication system of claim 29, wherein said transmitter  
 2           is located with a base station, and wherein said receiver is located within  
 3           a user terminal.

1

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